Electronic TUBES

6BH8

TRIODE-PENTODE

DESCRIPTION AND RATING

The 6BH8 is a general-purpose miniature tube which contains a sharp-cutoff pentode and a medium-mu triode in one envelope. Except for the electrical characteristics of the triode section, the 6BH8 is identical to the 6AU8. The triode section of the 6BH8 incorporates a lower amplification factor than the 6AU8 triode section and consequently may be used in applications where the lower amplification factor is desired.

Like the 6AU8, the tube is suitable for a wide variety of general-purpose applications in both monochrome and color television receivers. The high figure of merit of the pentode section makes it particularly suited for service as a video amplifier, video intermediate-frequency amplifier, and sound intermediate-frequency amplifier. The triode section is intended for use as a sync amplifier, separator, or clipper or as a sweep oscillator. The triode section may also be connected as a diode for video-detector applications, which adds to the over-all versatility of the tube.

In addition, the 6BH8, as a result of its controlled heater warm-up characteristic, is especially suited for use in television receivers which employ series-connected heaters. When the tube is used in conjunction with other 600-milliampere types which exhibit essentially the same heater warm-up characteristic, heater voltage surges across the individual tubes are minimized during the warm-up period.

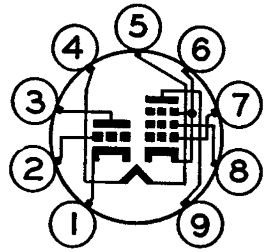
GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Voltage, AC or DC	6.3 Volts
Heater Current	0.6 Amperes
Heater Warm-up Time*	11 Seconds
Direct Interelectrode Capacitances†	
Pentode Section	
Grid-Number 1 to Plate	0.046 μμf
Input	7 μμf
Output	2.4 μμf
Triode Section	
Grid to Plate	2.4 μμf
Input	2.6 μμf
Output	0.38 μμf
Pentode Grid-Number 1 to Triode Plate	0.004 μμf
Triode Grid to Pentode Plate	0.016 μμf
Pentode Plate to Triode Plate	0.095 μμf

BASING DIAGRAM

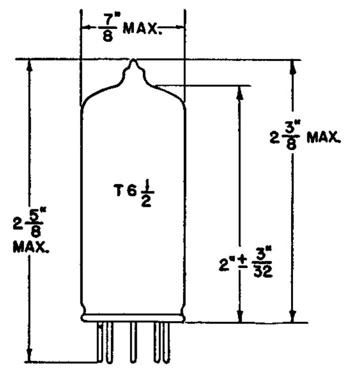


RETMA 9DX

TERMINAL CONNECTIONS

Pin 1—Triode Cathode
Pin 2—Triode Grid
Pin 3—Triode Plate
Pin 4—Heater
Pin 5—Heater
Pin 6—Pentode Cathode, Grid-No. 3 and Internal Shield
Pin 7—Pentode Grid-No. 1
Pin 8—Pentode Grid-No. 2 (Screen)
Pin 9—Pentode Plate

PHYSICAL DIMENSIONS



RETMA 6-3

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

DESIGN-CENTER VALUES

	Pentode Section	Triode Section	
Plate Voltage	300	300	Volts
Screen-Supply Voltage	300	...	Volts
Screen Voltage—See Screen Rating Chart			
Positive DC Grid-Number 1 Voltage	0	0	Volts
Plate Dissipation	3.0	2.5	Watts
Screen Dissipation	1.0	...	Watts
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	0.25	0.5	Megohms
With Cathode Bias	1.0	1.0	Megohms

CHARACTERISTICS AND TYPICAL OPERATION

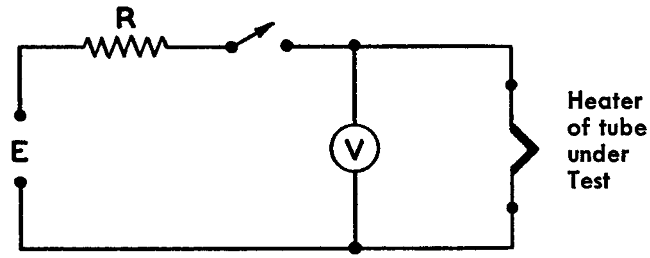
CLASS A_1 AMPLIFIER

	Pentode Section	Triode Section	
Plate Voltage	200	150	Volts
Screen Voltage	125	...	Volts
Grid-Number 1 Voltage	...	−5	Volts
Cathode-Bias Resistor	82	...	Ohms
Amplification Factor	...	17	
Plate Resistance, approximate	150000	5150	Ohms
Transconductance	7000	3300	Micromhos
Plate Current	15	9.5	Milliamperes
Screen Current	3.4	...	Milliamperes
Grid-Number 1 Voltage, approximate			
I_b = 100 Microamperes	−8	−14	Volts

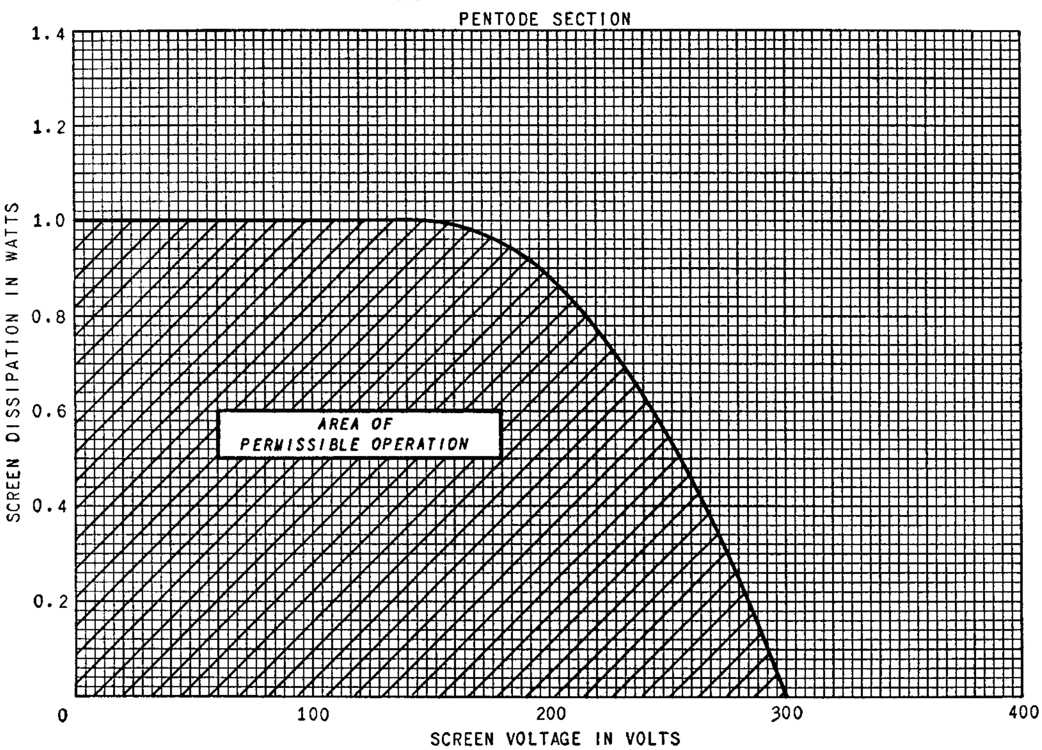
Note: The triode section of the 6BH8 may be diode-connected and employed as a high-perveance diode in video-detector applications. The diode operation can be obtained either with the triode grid connected to the triode plate and the combination operated as the plate of the diode, or with the triode plate grounded and the triode grid operated as the plate of the diode.

* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals to increase from zero to the heater test voltage (V_1). For this type, E=25 volts (RMS or DC), V_1=5.0 volts (RMS or DC), and R=31.5 ohms.

† Without external shield.

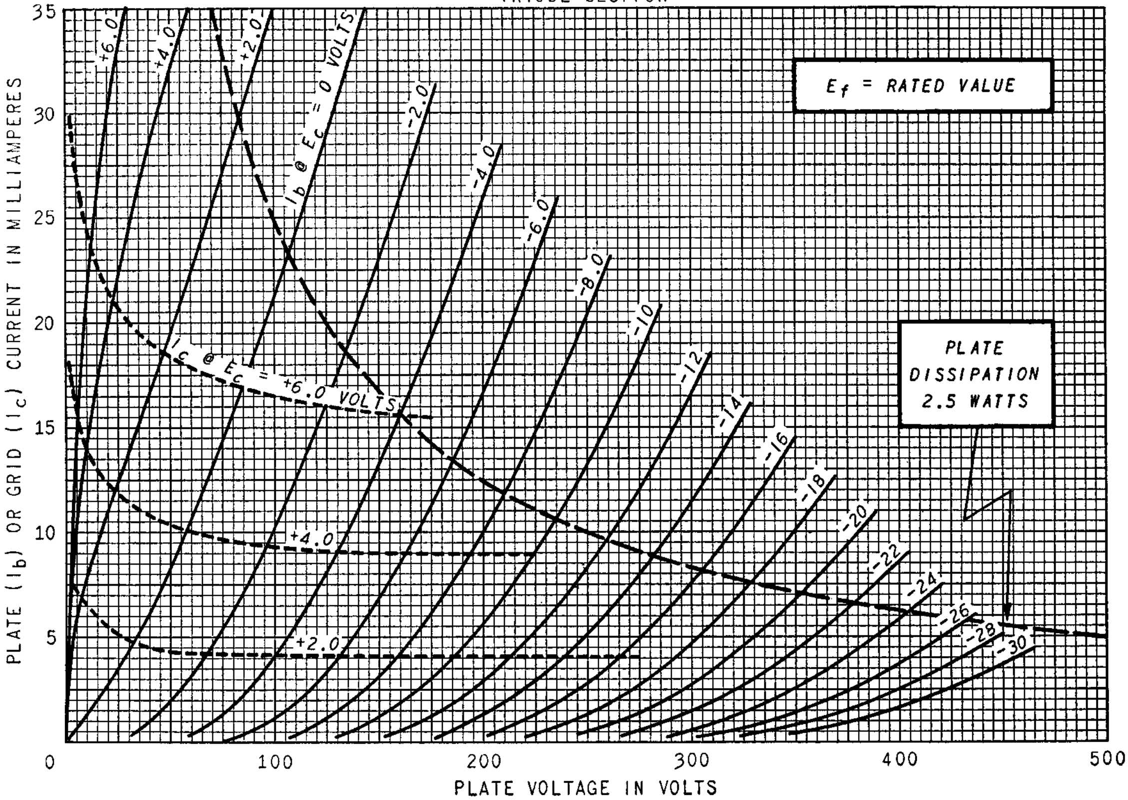


SCREEN RATING CHART



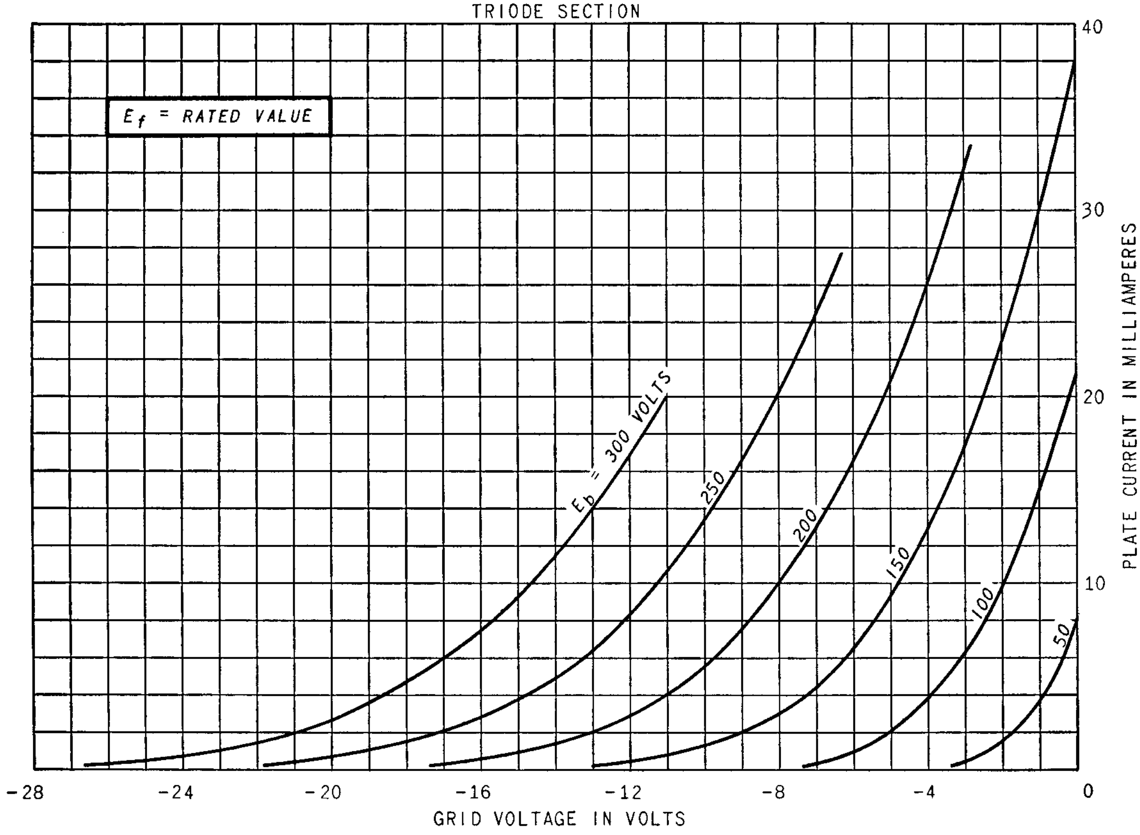
AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION

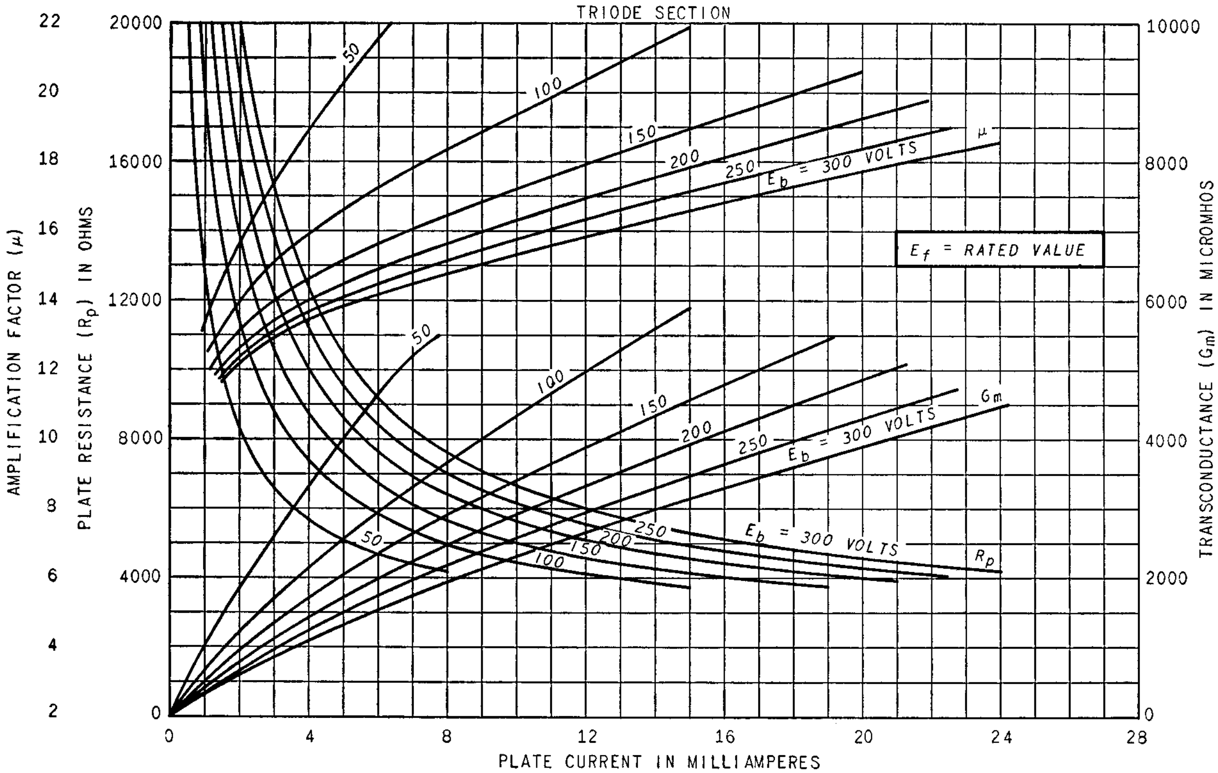


AVERAGE TRANSFER CHARACTERISTICS

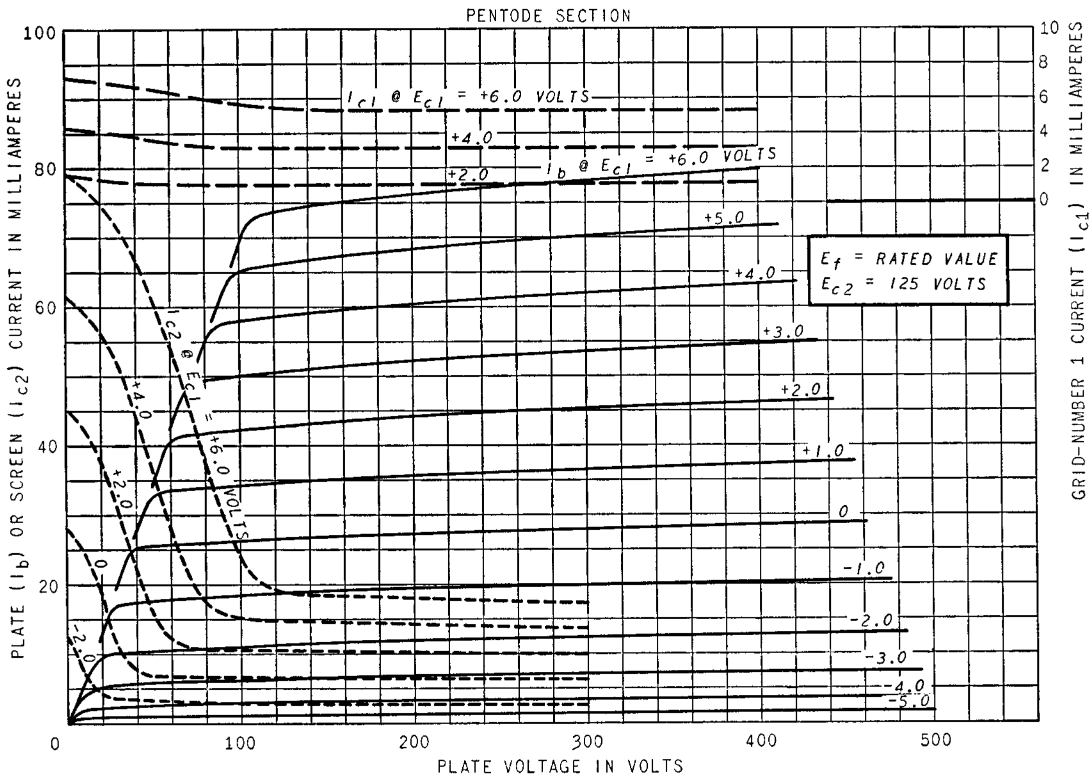
TRIODE SECTION



AVERAGE CHARACTERISTICS

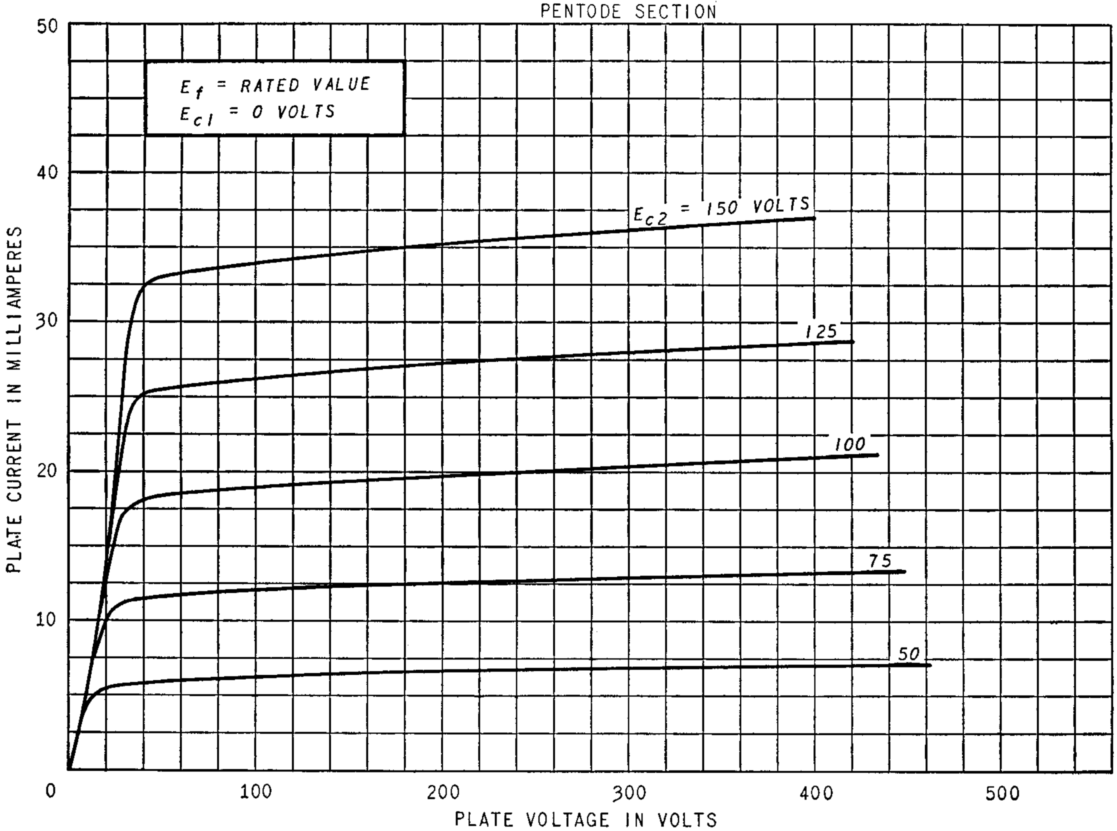


AVERAGE PLATE CHARACTERISTICS



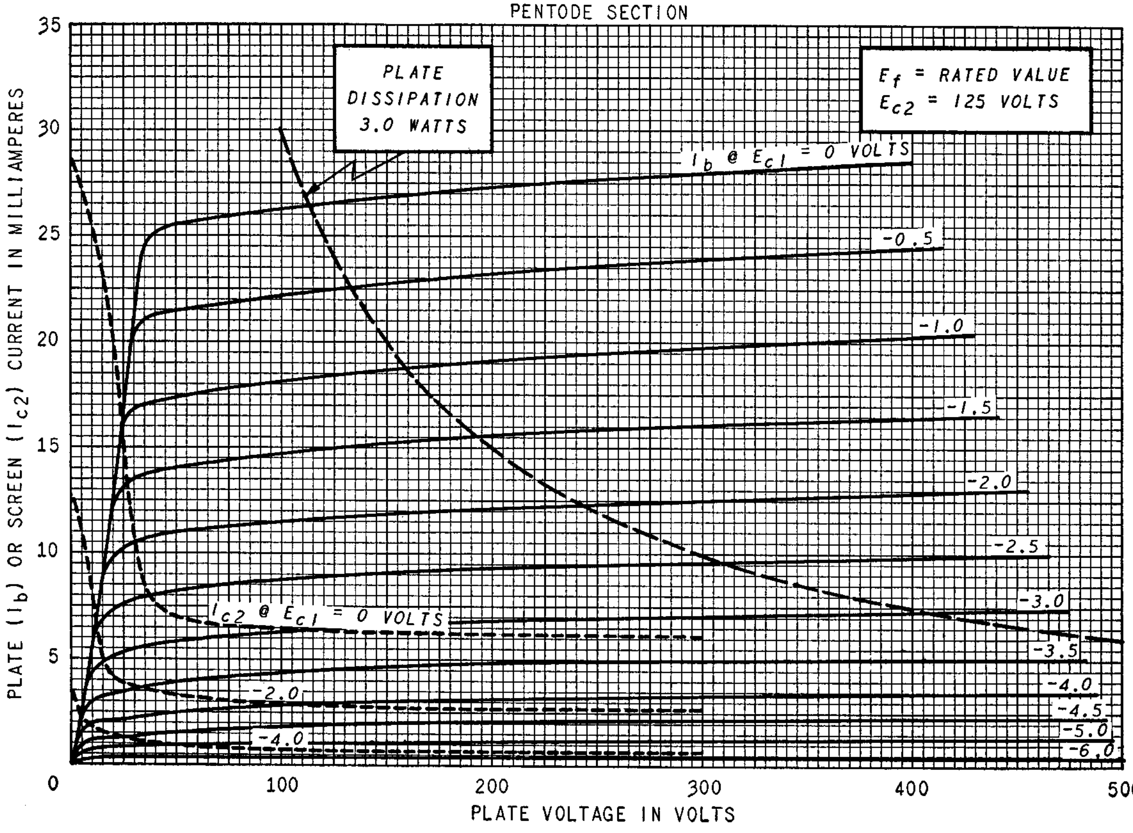
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



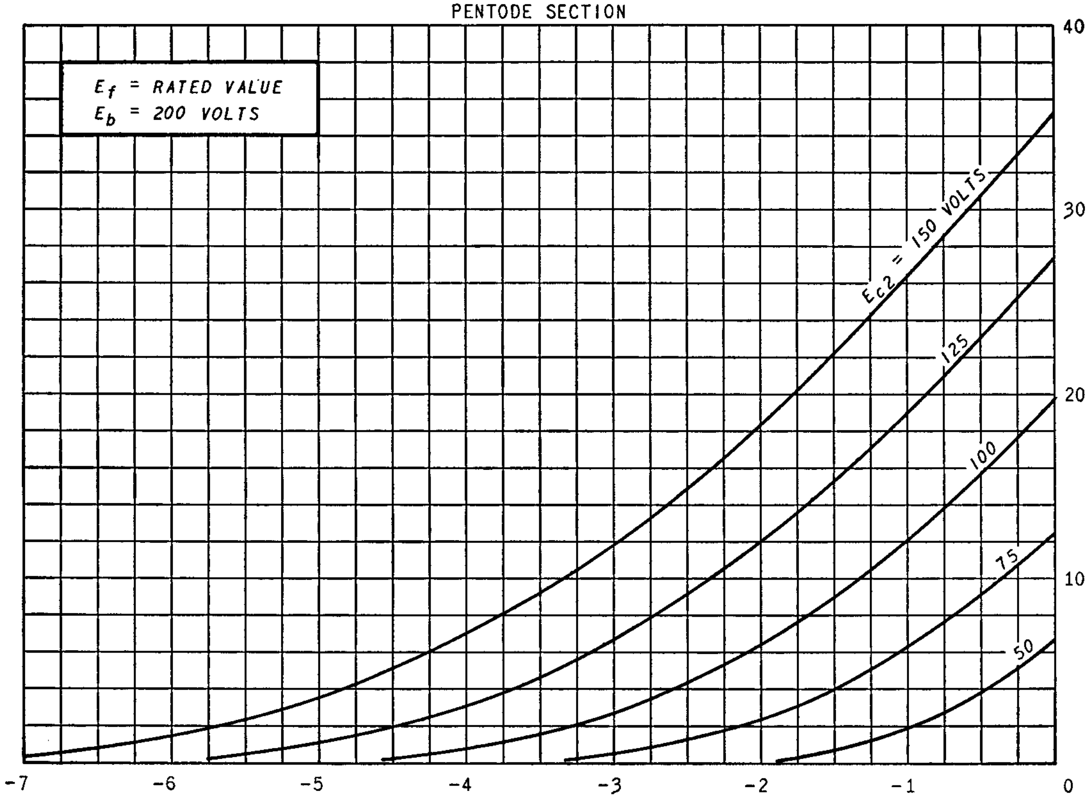
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



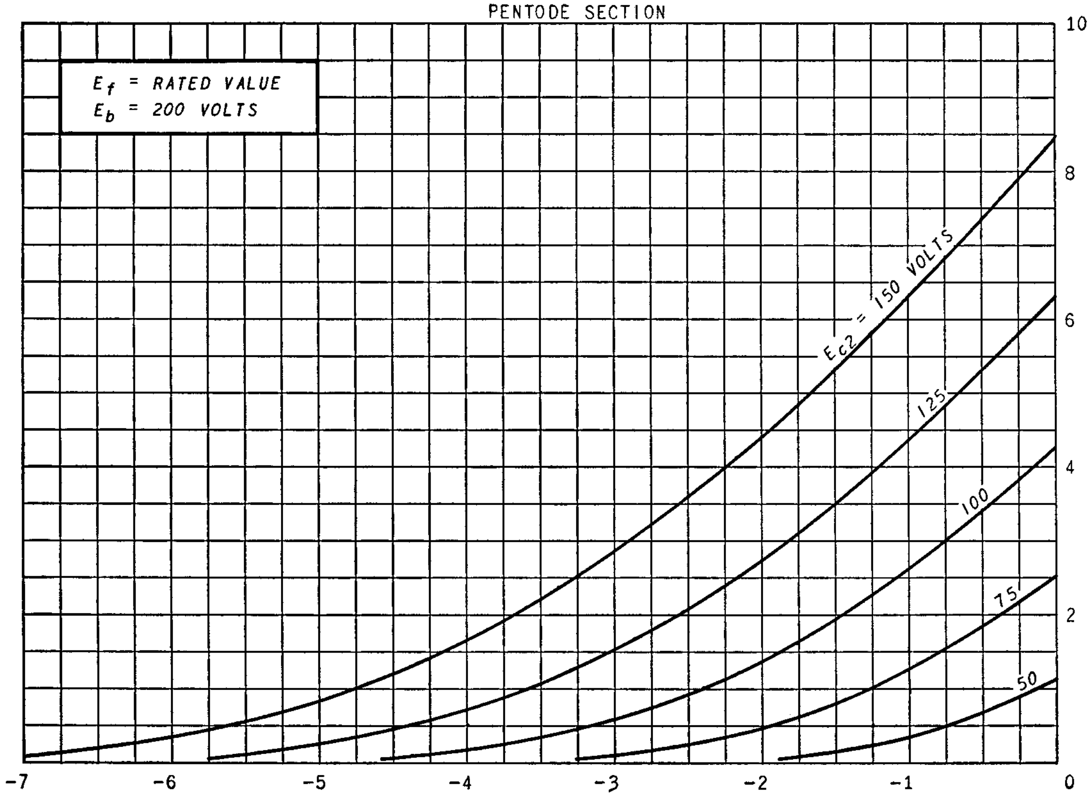
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS

